A SUSTAINABLE MOBILITY FUTURE

Rethinking Transit Solutions

Presented by
Jonathan Chai & Elli Papaioannou
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01
MEET JONATHAN & ELLI AT HDR
THE PRESENTERS

Meet Jonathan…
- Project Manager at HDR with 12 years of experience
- Multimodal planning and TMPs
- Dreamed of owning my own car one day…

Meet Elli…
- Transportation Planner at HDR with 4 years of experience
- Works on MTO’s Greater Golden Horseshoe Plan and brings strategic insight on Regional concerns
- Dreamed of living and working in a big City and walking, biking or taking transit to work…
A BIT ABOUT HDR

- HDR offers Engineering, Architecture, Environmental and Construction Services in Canada, US and worldwide
- 10,000 employees in 225 offices worldwide
- 250 employees in Toronto and Richmond Hill Offices
- Currently working across the GTA with MTO, Metrolinx, Upper and Lower Tier municipalities and transit agencies
02 NEW MOBILITY…?
WHAT IS NEW MOBILITY

- New Mobility or Smart Mobility refers to the way we access and consume transportation services
  - On Demand Services
  - The changing concept of ownership
  - Sharing (is caring)
- Utilizes technological advances to facilitate operations
- Crucial component of New Mobility will be the concept of Mobility as a Service (MaaS)
NEW MOBILITY SERVICES

Individual Based Mobility
- Car Sharing
- Bike Sharing
- Ride Sharing

Group Based Mobility
- Shared Ride Sourcing
- Demand Responsive Transit
- Microtransit

The On-Demand Concept
Mobility as a Service
INDIVIDUAL-BASED MOBILITY

Car-Sharing
Example: Car2Go in Calgary

Bike-Sharing
Example: Sobi Hamilton

Ride-Sharing or Ride Sourcing

Transportation Network Companies

The Mobility Service is operated by individuals (e.g. uberX, by a company (e.g. taxi), or by a city/agency (Sobi Bike share).
GROUP-BASED MOBILITY

The Mobility Service is operated by individuals or a company (e.g. uberPOOL or Chariot), or by a city/agency (YRT DAR)

Shared Ride Sourcing
Source: Global News

Demand Responsive Transit- YRT Dial-A-Ride

Microtransit Chariot San Francisco
MOBILITY AS A SERVICE (MAAS)

Journey Planning  Ease of Transaction  Flexible Payment terms  User Experience  Personalized Service

“MaaS is a provision of transport via a real-time personalized service model that integrates all types of mobility choices and presents them to the customer in a completely integrated manner to get them from A to B as easily as possible”
EXAMLES OF MAAS

- Mobility Shop in Hannover, Germany
- Whim in Helsinki, Finland
- Combines all different memberships on one platform
- Different plans that offer a range of modes and number of trips
MOBILITY AS A SERVICE (MAAS)

“MaaS is a provision of transport via a real-time personalized service model that integrates all types of mobility choices and presents them to the customer in a completely integrated manner to get them from A to B as easily as possible”
03

WHY ARE NEW MOBILITY SOLUTIONS NEEDED?
WE LIVE IN AN EVER-CHANGING ENVIRONMENT

- Changing Region
  - Growing senior population
  - Millennials

- Growing Region
  - Growth in population and employment
  - Inter-suburb connections
  - Big employment areas ringing Toronto
  - Inequity

- Known Unknowns
POPULATION GROWTH

- Peel’s population grew by 6.5% from 2011 to 2016
- Is projected to grow to 1,970,000 by 2041 (according to the Growth Plan)

What does this mean for the way we move around?

Different densities require different services and can support different services
60’s ARE THE NEW 40’s

- Seniors are the fastest growing age group in Canada
- The number of seniors in Ontario is projected to almost double from 2016 to 2041 from 16% to 25% of the population
- In Peel
  - 65+ was 1 out of 10 in 2011
  - 65+ is expected to be 1 out of 4 in 2041
- The need to make communities more age-friendly

What does this mean for the way we move around?

Personal mobility is important for accessing day-to-day destinations and to give a sense of independence
THE MILLENNIAL
Born between 1980 and 2000

- Have come of age during a time of technological changes, globalization and economic disruption
- Facing lower employment levels and smaller incomes compared to previous generations and they have more debt (student loans)
- They want services that provide access without the burden of ownership

What does this mean for the way we move around?

*In 25 years from now, car sharing will be the norm and car ownership an anomaly.*

- Jeremy Rifkin

Source: Goldman Sachs Global Investment Research
CHANGE IN EMPLOYMENT

- Increase of knowledge-intensive and service-based economy, with growth of on-demand and peer-to-peer services and e-commerce
- Introduction of significant automation across multiple industries
- Growth in precarious and low-wage employment

What does this mean for the way we move around?

Not one fixed destination and fuzzy commuting patterns, which may be difficult to serve with conventional transit
These three employment areas ringing Toronto cover over 500,000 jobs. Nearly 95% of commuting trips to these areas are made by car. These large employment areas are poorly served by transit.

What does this mean for the way we move around?
Most of these employment areas are in low density lands, making it difficult to walk or bike to for the first and last mile of the trip.
REGIONAL EXPRESS RAIL

- RER will bring frequent, all-day, two-way service to the GTA
- In 2015, 62% of GO Transit users accessed the stations by car
- By 2031, they want to see the drive and park share drop to 38%

What does this mean for the way we move around?

Many of the GO stations are in industrial lands, or close to low density residential neighbourhoods with poor transit connections

Source: Metrolinx, GO Rail Station Access Plan, 2016
KNOWN UNKNOWNS

AVs

Telecommunication needs?
Increase in travel?
Liability?
Electric AVs?
Shared?
Cybersecurity?
Encourage sprawl?
Accidents?
Will they replace transit?
Decrease in travel?
Big Data?
Decrease costs?
Infrastructure needs?
Decrease parking requirements?
Impact to the environment?
Increase congestion?
Reduce lane widths?
Insurance?
Individually owned?
SO WHAT ARE WE DOING ABOUT IT?
MUNICIPALITIES ARE ADAPTING

- Regional Direction:
  - CUTA Integrated Mobility Toolbox
  - MTO’s GGH Transportation Plan
  - Metrolinx RTP/New Mobility
  - Metrolinx Station Access Plan

- Municipalities:
  - Milton GO Pilot project
  - Innisfil
  - Transit Feasibility Studies
  - EcoMobility Hubs

Basemap Source: Metrolinx/WSP, New Mobility Background paper, 2017
The toolbox is meant to be used by transit agencies

Provides examples of integrated mobility solutions

The toolbox covers three themes of integrated mobility
  o Design for Movement
  o Demand Management
  o Mobility Management

Source: CUTA/Dillon, Integrated Mobility Toolbox, 2017
MTO’S GGH TRANSPORTATION PLAN

- Ongoing project for the Ministry of Transportation
- Long-term multimodal Plan
- For a 2051 Horizon with a Vision for 2071
- Takes into consideration new technologies, such as AVCV, drones, etc.

Source: MTO, GGH Transportation Plan, https://www.gghtransport2051.ca/about-the-project/
METROLINX RTP AND NEW MOBILITY BACKGROUND PAPER

- Discussion paper was released as part of the RTP Update
- Describes new trends in mobility, opportunities and risks
- Sets out two paths for the adoption of new mobility
  - Governments take a proactive and highly regulated approach
  - Reactive approach where new mobility evolves organically

Scan of Global and Regional New Mobility Trends

Key Trends in Four Areas of Impact

Source: Metrolinx/WSP, New Mobility Background Paper, 2016
ON-DEMAND STRATEGY
York Region Transit

- YRT already operates a few Dial-A-Ride routes
- Local bus routes on low demand areas will be replaced by on-demand
- Small geographic service zones
- Each zone would contain at least one high-order transit bus route
- Users would book trips on a mobile app
ECOMOBILITY HUBS - FACILITATING MOBILITY INTEGRATION
City of Toronto

Source: Sophia Von Berg, 2014
WHAT DOES THE FUTURE LOOK LIKE?

- Highly unpredictable future
- We need to combine and use the range of tools and travel options that are available
- We need to make plans that are flexible and adaptable
- Companies and governments should take an integrated perspective and build strong partnerships

Source: McKinsey: An integrated perspective on the future of mobility
Thank you for listening!

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